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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/774,517

02/10/2004

Woo-Hyuk Choi

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06/24/2009

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EXAMINER

NGUYEN, DUNG T

ART UNIT

PAPER NUMBER

2871

MAIL DATE

DELIVERY MODE

06/24/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/774,517	Applicant(s) CHOI, WOO-HYUK	
	Examiner Dung Nguyen	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-14 and 16-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-14 and 16-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/745,526.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicants' amendment dated 02/25/2009 has been received and entered. By the amendment, claims 11-14, 16-21 are pending in the application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 11-14 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakai et al, US Patent No. 5,166,085, in view of Kitazawa et al., US Patent No. 5,920,082 and Ahn, US Patent No. 6,288,414.

Regarding claims 11-14, Wakai et al. disclose a method of forming a thin film transistor substrate (figure 8) comprising the step of forming:

- . a substrate (101);
- . a gate electrode (102);
- . a gate insulating layer (103);
- . an active layer (104);
- . a source electrode (106b), it should be noted that "drain electrode" and "source electrode" are conventionally used interchangeably;
- . a drain electrode (107b) having a bent shape and having a first side facing the source electrode and a second side;

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. a protection layer (118) covers the source electrode only and the first side of the drain electrode;

. a pixel electrode (54) separated from the protection layer (118) as well as overlapped and contacted with the second side of the drain electrode (107b) and gate insulating layer (103).

Wakai et al. neither disclose the step of forming the pixel electrode by using a back exposure nor the step of forming a gate pad, a gate pad electrode as well as a data pad and a data pad electrode having pad holes therein.

Kitazawa et al. disclose a pixel electrode can be formed by using a back exposure (figure 3, col. 5, lines 17-30). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to employ a pixel electrode by using a back exposure as shown by Kitazawa et al. in order to reduce and self alignment of the pixel electrode to signal lines further improve an aperture ratio of an LCD device (col. 6, lines 10-13).

Ahn discloses that a gate/data line (21/24) having a gate/data pad (115/135) electrically contacting a gate/data pad electrode (11/137) through a gate/data pad hole (187/197) with the protection layer (139) thereon, wherein at least the gate/data pad hole is formed within the contact hole and the gate/data pad electrode at least within the region where the contact hole formed (see figure 7A). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to employ the Wakai et al. device having a gate/data pad connected to gate/data line as shown by Ahn in order to keep contact resistance of a pad terminal surface at a low level (col. 3, ln. 25-27). In addition, although Ahn does not explicitly disclose the back exposure light method for forming the gate/data pad electrode(s), Kitazawa et al., as stated above, do disclose a method of using a back exposure light for etching a layer over a

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substrate forming gate/data pad electrodes (e.g., etching the electrode over the substrate) and it is an evidence that one of ordinary skill in the art would be able to merely find how to apply a back exposure method for forming gate/data pad electrodes in a display device. Therefore, it would have been obvious to one skilled in the art to apply a back exposure method for forming a gate/data pad electrode in order to simplify a manufacturing process for an LCD display (e.g., forming both gate/data pad electrode(s) and pixel electrode at the same time).

Response to Arguments

3. Applicant's arguments filed 2/25/2009 have been fully considered but they are not persuasive.

Applicant's only argument is that none of the cited references teaches or suggests "a region where the pad hole is formed is within a region where the contact hole is formed, and wherein the at least one of the gate pad electrode and the data pad electrode is within the region where the contact hole is formed". Applicant is directed to Ahn's figure 7A which clearly shown that the pad hole (formed by 117) is formed is within a region where the contact hole (formed by 119) is formed, and wherein the at least one of the gate pad electrode and the data pad electrode (gate/data pad terminal) is within the region where the contact hole (formed by 119) is formed.

Accordingly, the modification to limitation of the Wakai et al. can read on the claimed limitation as well.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung Nguyen whose telephone number is 571-272-2297. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DN
06/22/2009

/Dung T. Nguyen/
Primary Examiner
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